

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No.: ISPH-0786  
Inventors: Monia and Cowsert  
Serial No.: Not Yet Assigned  
Filing Date: Herewith  
Examiner: Not Yet Assigned  
Group Art Unit: Not Yet Assigned  
Title: Antisense Modulation of CREB Expression

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By Jane Massey Licata  
Typed Name: Jane Massey Licata, Reg. No. 32,257

Commissioner for Patents  
Mail Stop Sequence  
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Sir:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §1.56 and in accordance with 37 C.F.R. §§1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 C.F.R. §1.56(b).

(XX) In accordance with §1.97(b), since this Information Disclosure Statement is being filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of the above identified application as set forth in §1.491, or before the mailing date of a first Office Action on the merits of the above-identified application, no additional fee is required.

( ) In accordance with §1.97(c), this Information Disclosure Statement is being filed after the period set forth in §1.97(b) above but before the mailing date of either a Final Action under §1.113 or a Notice of Allowance under §1.311, therefore:

( ) Certification in Accordance with §1.97(e) is set forth below; or

( ) The fee of \$180.00 as set forth in §1.17(p) is attached.

( ) In accordance with §1.97(d), this Information Disclosure Statement is being filed after the mailing date of either a Final Action under §1.113 or a Notice of Allowance under §1.311 but before the payment of the Issue Fee, therefore included are: Certification in Accordance with §1.97(e); Petition Requesting Consideration of the Information Disclosure Statement; and the fee of \$130.00 as set forth in §1.17(I)(1).

( ) Copies of each of the references listed on the attached Form PTO-1449 (modified) are enclosed herewith.

(xx) In accordance with §1.98(d), copies of some or all of the references listed on the attached Form PTO-1449 (modified) are not enclosed herewith because they were previously submitted to the U.S. Patent and Trademark Office in prior application Serial No. 09/973,827, filed October 10, 2001 for which a claim for priority under 35 U.S.C. §120 has been made in the instant application.

Please charge any deficiency or credit any overpayment to Deposit Account No. 50-1619. This form is submitted in duplicate.

( ) The relevance of the listed references in a foreign language is as stated in the specification at pages @@.

(xx) All listed references are in the English language.

Respectfully submitted,

*Jane Massey Licata*

Jane Massey Licata  
Registration No. 32,257

Date: September 26, 2003

Licata & Tyrrell P.C.  
66 E. Main Street  
Marlton, New Jersey 08053

(856) 810-1515

DOCKET NO.: ISPH-0786

Form PTO-1449 Modified		Docket No. ISPH-0786	Serial No. not yet assigned
List of Patents and Publications Cited by Application (Use several sheets if necessary)  U.S. Department of Commerce Patent and Trademark Office		Applicant Brett P. Monia et al.	
		Filing Date herewith	Group
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	AA	Bertherat et al., The cyclic adenosine 3',5'-monophosphate-responsive factor CREB is constitutively activated in human somatotroph adenomas, Mol. Endocrinol., 1995, 9:777-783	
	AB	Chance et al., Antagonism of NPY-induced feeding by pretreatment with cyclic AMP response element binding protein antisense oligonucleotide, Neuropeptides (Edinburgh), 2000, 34:167-172	
	AC	Cole et al., The mouse CREB (cAMP responsive element binding protein) gene: structure, promoter analysis, and chromosomal localization, Genomics, 1992, 13:974-982	
	AD	Gonzalez et al., A cluster of phosphorylation sites on the cyclic AMP-regulated nuclear factor CREB predicted by its sequence, Nature, 1989, 337:749-752	
	AE	Guzowski et al., Antisense oligodeoxynucleotide-mediated disruption of hippocampal cAMP response element binding protein levels impairs consolidation of memory for water maze training, Proc. Natl. Acad. Sci. U. S. A., 1997, 94:2693-2698	
	AF	Hoeffler et al., Cyclic AMP-responsive DNA-binding protein: structure based on a cloned placental cDNA, Science, 1988, 242:1430-1433	
	AG	Itoi et al., Major role of 3',5'-cyclic adenosine monophosphate-dependent protein kinase A pathway in corticotropin-releasing factor gene expression in the rat hypothalamus in vivo, Endocrinology, 1996, 137:2389-2396	
	AH	Kim et al., The role of cyclic AMP response element-binding protein in testosterone-induced differentiation of granular convoluted tubule cells in the rat submandibular gland, Arch. Oral Biol., 2001, 46:495-507	
	AI	Kiss-Toth et al., Member of the CREB/ATF protein family, but not CREB.alpha., plays an active role in BLV tax trans activation in vivo, Nucleic Acids Res., 1993, 21:3677-3682	
EXAMINER		DATE CONSIDERED	

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	Applicant Brett P. Monia et al.	
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**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

	AJ	Konradi et al., Amphetamine regulates gene expression in rat striatum via transcription factor CREB, <i>J. Neurosci.</i> , 1994, 14:5623-5634
	AK	Konradi et al., Haloperidol-induced Fos expression in striatum is dependent upon transcription factor cyclic AMP response element binding protein, <i>Neuroscience</i> , 1995, 65:1051-1061
	AL	Lamprecht, CREB. A message to remember, <i>Cell. Mol. Life Sci.</i> , 1999, 55:554-563
	AM	Lamprecht et al., cAMP response element-binding protein in the amygdala is required for long- but not short-term conditioned taste aversion memory, <i>J. Neurosci.</i> , 1997, 17:8443-8450
	AN	Lane-Ladd et al., CREB (cAMP response element-binding protein) in the locus coeruleus: biochemical, physiological, and behavioral evidence for a role in opiate dependence, <i>J. Neurosci.</i> , 1997, 17:7890-7901
	AO	Murphy et al., Morphological plasticity of dendritic spines in central neurons is mediated by activation of cAMP response element binding protein, <i>Proc. Natl. Acad. Sci. U. S. A.</i> , 1997, 94:1482-1487
	AP	Nagamoto-Combs et al., Tyrosine hydroxylase gene promoter activity is regulated by both cyclic AMP-responsive element and AP1 sites following calcium influx. Evidence for cyclic AMP-responsive element binding protein-independent regulation, <i>J. Biol. Chem.</i> , 1997, 272:6051-6058
	AQ	Piech-Dumas et al., CREB mediates the cAMP-responsiveness of the tyrosine hydroxylase gene: use of an antisense RNA strategy to produce CREB-deficient PC12 cell lines, <i>Mol. Brain Res.</i> , 1999, 70:219-230
	AR	Ruppert et al., Multiple mRNA isoforms of the transcription activator protein CREB: generation by alternative splicing and specific expression in primary spermatocytes, <i>Embo J.</i> , 1992, 11:1503-1512

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U.S. Department of Commerce Patent and Trademark Office			
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	AS	Saeki et al., CREB antisense oligonucleotides induce non-apoptotic cell death in proliferating leukemia cells, but not normal hematopoietic cells, by a bizarre non-antisense mechanism, <i>Leukemia</i> , 2001, 15:238-245	
	AT	Saeki et al., Aberrant expression of cAMP-response-element-binding protein ('CREB') induces apoptosis, <i>Biochem. J.</i> , 1999, 343 Pt 1:249-255	
	AU	Sassone-Corsi, Coupling gene expression to cAMP signalling: role of CREB and CREM, <i>Int. J. Biochem. Cell Biol.</i> , 1998, 30:27-38	
	AV	Sato-Bigbee et al., Treatment of oligodendrocytes with antisense deoxyoligonucleotide directed against CREB mRNA: effect on the cyclic AMP-dependent induction of myelin basic protein expression, <i>J. Neurosci. Res.</i> , 1996, 46:98-107	
	AW	Shaywitz et al., CREB: a stimulus-induced transcription factor activated by a diverse array of extracellular signals, <i>Annu. Rev. Biochem.</i> , 1999, 68:821-861	
	AX	Sheriff et al., NPY upregulates genes containing cyclic AMP response element in human neuroblastoma cell lines bearing Y1 and Y2 receptors: involvement of CREB, <i>Regul. Pept.</i> , 1998, 75-76:309-318	
	AY	Silva et al., CREB and memory, <i>Annu. Rev. Neurosci.</i> , 1998, 21:127-148	
	AZ	Taylor et al., Assignment of the human gene for CREB1 to chromosome 2q32.3-q34, <i>Genomics</i> , 1990, 7:416-421	
	BA	Waeber et al., Novel testis germ cell-specific transcript of the CREB gene contains an alternatively spliced exon with multiple in-frame stop codons, <i>Endocrinology</i> , 1992, 131:2010-2015	
	BB	Waeber et al., Developmental stage-specific expression of cyclic adenosine 3',5'-monophosphate response element-binding protein CREB during spermatogenesis involves alternative exon splicing, <i>Mol. Endocrinol.</i> , 1991, 5:1418-1430	
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	BC	White et al., CREB contributes to the increased neurite outgrowth of sensory neurons induced by vasoactive intestinal polypeptide and activity-dependent neurotrophic factor, Brain Res., 2000, 868:31-38	
	BD	Widnell et al., Regulation of CREB expression: in vivo evidence for a functional role in morphine action in the nucleus accumbens, J. Pharmacol. Exp. Ther., 1996, 276:306-315	
	BE	Yang et al., Identification of a novel, spliced variant of CREB that is preferentially expressed in the thymus, J. Immunol., 1997, 158:2522-2525	
	BF	Ziolkowska et al., Regulation of proenkephalin gene expression by transcription factors Fos and CREB: an antisense oligonucleotide approach, Biotechnologia, 1996, 167-172	
EXAMINER		DATE CONSIDERED	

DOCKET NO.: RTS-0237

Form PTO-1449 Modified  List of Patents and Publications Cited by Application (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office	Docket No. ISPH-0786	Serial No.
	Applicant Brett P. Monia et al.	
	Filing Date	Group

U.S. PATENT DOCUMENTS

Examiner's Initial		Document No.	Date	Name	Class	Subclass
	AA	5,919,649	7/6/1999	Habener et al.	435	69.1
	AB	6,194,632	2/27/2001	Leiden	800	3
	AC					
	AD					
	AE					
	AF					
	AG					
	AH					
	AI					
	AJ					
	AK					
	AL					
	AM					
	AN					

FOREIGN PATENT DOCUMENTS

Examiner's Initial		Document No.	Date	Country	Translation	
					YES	NO
	AO	WO 90/05745	5/31/1990	PCT	X	
	AP	JP 11103860	4/20/1999	JP		X
	AQ					
	AR					
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